

Third West Weekly Report Shepherd, Michael

1241225 - R8 SDMS

to:

Joyce Ackerman, 'Craig Barnitz (cbamitz@utah.gov)' 06/27/2012 11:49 AM

Hide Details

From: "Shepherd, Michael" < Michael. Shepherd@rockymountainpower.net>

To: Joyce Ackerman/R8/USEPA/US@EPA, "'Craig Bamitz (cbamitz@utah.gov)" <cbamitz@utah.gov>

7 Attachments











Weekly Report 06-18 to 06-22-12.pdf Third West Weekly Log 2012-25.pdf 238345-1.pdf 238435-1.pdf 238532-1.pdf





238640-1.pdf 238751-1.pdf

Joyce & Craig,

Attached are the reports for the week of June 18, 2012.

All air monitoring results came back negative, except for chrysotile hits on Wednesday and Thursday last week.

Please let me know if you have any questions.

Thanks,

Mike Shepherd
Project Manager
Rocky Mountain Power - Major Projects
801.220.4584 Office
801.631.1310 Cell
801.220.2797 Fax
michael.Shepherd@pacificorp.com



determined necessary



3RD WEST SUBSTATION REMEDIATION PROJECT **HEALTH SAFETY MANAGER (HSM)**

		DAILY CHECKLIST
DATE	:	06/18/12
Ge	neral	
		rea Health and Safety Inspection
NA		Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
	-	activities for the day
Ø		Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	L	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	\	Complete Employee Meeting Record Form B (where applicable)
NA	\	Document required Respirator Training completion with Form H
NA		Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA		Confirm return of waste material manifest documents for each load with site
		manager.
NA	Comple	ete all CSHASP Forms (for applicable activities planned for that day)
	NA	Illness/Injury Report Form A
	NA	Site-Specific Training Record Form C
	NA	Hot Work Permit Form D
	NA	Trench/Evacuation Permit Form E
	NA	Combined Space Entry Permit From F
		Exclusion zone operations are practiced as instructed.
		☑ Decontamination unit is working properly.
		Workers are using decontamination unit as instructed.
		Workers use personal protective equipment properly.
		Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
		Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
☑ ☑		Review sign-in/sign-out log throughout and at the end of the workday. Secure the site at the end of the workday
<u>Sa</u>	mpling	
INT A	Sail Ca	
NA ☑	SOILC	onfirmation sampling for any newly excavated areas Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone
NA		Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
NA.	1	Digitally photograph each sample location and at any place field sampling personnel





Electronically file photo files into the on-site database
Complete Field Documentation
Field Sample Data Sheets (FSDS)
Logbook
On-site computer database
Label each sample media with a unique number
Seal sample(s) in zip lock plastic bags
Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
Electronically file sample reports into on-site database



Project: 3rd West Sub Station	Date: 06/18/12
Location: 3rd West, 1st South, SLC	Job Number:
Survey Conducted By: _Justin Kargis	Title:

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			х	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	х			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.		80	х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			x	
1926.20 (b)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			х	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			х	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			х	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.	x			
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			х	,
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х	,		

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (4)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.	Ŀ		x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			х	•
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	х			761
1926.150 (c)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	х			
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			Х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			х	
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	х			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	x			
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			х	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

Exclusion zone active while excavations took place.

Newman washed out 1 truck in the morning. This eliminated the stockpile of native material. They then covered the area with clean fill and grated over it. They began dismantling the decontamination unit by removing the water tank and transferring the containers to near the fence along the fence near the northwest gate. They also placed road base along the southeast corner of the yard.

CVE continued working on buss between bay 2 transformer and switchgear. They also dismantled triplex service to decontamination unit.

Weather was warm, dry and sunny with afternoon breezes and high temperatures in the low 80's.





3RD WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

	<u>DAILY CHECKLIST</u>
DATE:	06/19/12
Genera	
	nk area Health and Safety Inspection
NA NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
1121	activities for the day
☑	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	Complete Employee Meeting Record Form B (where applicable)
NA	Document required Respirator Training completion with Form H
NA	Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA	Confirm return of waste material manifest documents for each load with site manager.
NA Cor	mplete all CSHASP Forms (for applicable activities planned for that day)
NA	
NA	· ·
NA	•
NA	Trench/Evacuation Permit Form E
NA	Combined Space Entry Permit From F
	Exclusion zone operations are practiced as instructed.
	☐ Decontamination unit is working properly.
	Workers are using decontamination unit as instructed.
	Workers use personal protective equipment properly.
☑	Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
	Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
	Review sign-in/sign-out log throughout and at the end of the workday.
☑	Secure the site at the end of the workday
Sampl	ing ,
NA So	Confirmation sampling for any newly excavated areas Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
NA	Digitally photograph each sample location and at any place field sampling personnel





	Electronically file photo files into the on-site database
	Complete Field Documentation
\square	Field Sample Data Sheets (FSDS)
	Logbook
	On-site computer database
	Label each sample media with a unique number
	Seal sample(s) in zip lock plastic bags
	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
	Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
	Electronically file sample reports into on-site database



Project: 3rd West Sub Station	Date: <u>06/19/12</u>				
Location: 3rd West, 1st South, SLC	Job Number:				
Survey Conducted By:	Title:				

Standard	Title	In Compliance	Out of Compliance	D N/A	Corrective Action Taken and
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.	P		х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	х			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			х	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	х			

Standard	Title	In Compliance	Out of Compliance	D N/A	Corrective Action Taken and Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			х	
1926.20 (b)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			х	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.		Ð	х	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			х	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			х	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.	x			
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			х	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (4)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	
1926.405 (Ь)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			х	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	х			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	х			>
1926.102 (a) (1)	Eye and face protection shall be provided.	х			,
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	х			
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			Х	4

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	х			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			х	
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	х			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.		is .	х	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x	٠		
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	x			
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			х	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			х	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

Exclusion zone has been deconstructed. Future operations involving exposing contaminated material will include wetting and covering the material before disposal.

Newman dumped and spread road base along southeast corner and compacted where decontamination stood. They excavated for cable tray between 138 kV and 46 kV yards.

Weather was cooler than previous days with gusty afternoon winds, sunny skies and temperatures around 70.





3rd West Substation Remediation Project HEALTH SAFETY MANAGER (HSM)

DAILY CHECKLIST

	DAILY CHECKLIST
DATE:	06/20/12
<u>Genera</u>	1
	rk area Health and Safety Inspection
NA WO	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
11/1	activities for the day
Ø	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	Complete Employee Meeting Record Form B (where applicable)
NA	Document required Respirator Training completion with Form H
NA	Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA	Confirm return of waste material manifest documents for each load with site manager.
NA Con	nplete all CSHASP Forms (for applicable activities planned for that day)
NA	Illness/Injury Report Form A
NA	Site-Specific Training Record Form C
NA	Hot Work Permit Form D .
NA	Trench/Evacuation Permit Form E
NA	Combined Space Entry Permit From F
	Exclusion zone operations are practiced as instructed.
	☐ Decontamination unit is working properly.
	Workers are using decontamination unit as instructed.
	Workers use personal protective equipment properly.
Ø	Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
	Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
☑	Review sign-in/sign-out log throughout and at the end of the workday.
\square	Secure the site at the end of the workday
<u>Sampli</u>	ng
NA Soi	l Confirmation sampling for any newly excavated areas
I	Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
NA	Digitally photograph each sample location and at any place field sampling personnel determined necessary





V	Electronically file photo files into the on-site database
☑	Complete Field Documentation
	Field Sample Data Sheets (FSDS)
	Logbook
	On-site computer database
	Label each sample media with a unique number
	Seal sample(s) in zip lock plastic bags
☑	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
☑	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
☑	Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
☑	Electronically file sample reports into on-site database



Project: 3rd West Sub Station	Date: <u>06/20/12</u>	_
Location: 3rd West, 1st South, SLC	Job Number:	_
Survey Conducted By: <u>Justin Kargis</u>	Title:	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			х	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			X	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	х			

Standard	Title	In Compliance	Out of Compliance	O N/A	Corrective Action Taken and Date
1926.652 (a)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	2		x	
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			х	Þ
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			х	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			х	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.	x			
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			

.

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х	**		
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			х	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	х			9
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	x			
1926.102 (a) (1)	Eye and face protection shall be provided.	х			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			X	
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			X	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			х	· ·
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	х	2		
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			х	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	x			,
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			х	
1926.602 (a)	Bi-directional earth moving equipment shall have audible alarms.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			x	

Bi-weekly meeting discussions included modified protocols for handling and transporting native material without exclusion zone, establishing an updated elevation/depth map based on new excavations, and environmental closeout items as the project nears completion.

Eagle Environmental removed decontamination shower equipment from conex containers.

Newman continued with compaction and grading of material. They have been removing various pieces of heavy equipment throughout the week.

CVE began excavations in areas with native material for grounding grid. They kept these excavations wet and the spoils covered. They also worked on the structure for the capacitor banks.

Weather was mild, dry and sunny with light breezes and afternoon temperatures near 80.





3rd West Substation Remediation Project HEALTH SAFETY MANAGER (HSM)

DAILY CHECKLIST

		DAIL! CHECKLIS!
DATE	: <u> </u>	06/21/12
	neral	and Haalth and Cafata Inguistica
		rea Health and Safety Inspection
NA	L	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
☑		activities for the day Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA		Site hazard and safety instruction for all first time employees, contractors or visitors
NA		Complete Employee Meeting Record Form B (where applicable)
NA		Document required Respirator Training completion with Form H
NA		Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA		Confirm return of waste material manifest documents for each load with site manager.
NA	Compl	ete all CSHASP Forms (for applicable activities planned for that day)
	NA	Illness/Injury Report Form A
	NA	Site-Specific Training Record Form C
	NA	Hot Work Permit Form D
	NA	Trench/Evacuation Permit Form E
	NA	Combined Space Entry Permit From F
		Exclusion zone operations are practiced as instructed.
•		☐ Decontamination unit is working properly.
		Workers are using decontamination unit as instructed.
		Workers use personal protective equipment properly.
☑		Set air samples at cardinal compass points around exclusion zone. Check
		throughout the day to ensure proper operation.
•		Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
☑		Review sign-in/sign-out log throughout and at the end of the workday.
☑		Secure the site at the end of the workday
Sa	mpling	
NA ☑	Soil Co	onfirmation sampling for any newly excavated areas Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone
NA	\	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
NA	\	Digitally photograph each sample location and at any place field sampling personnel determined necessary





☑	Electronically file photo files into the on-site database
☑	Complete Field Documentation
☑	Field Sample Data Sheets (FSDS)
	Logbook
$\overline{\mathbf{V}}$	On-site computer database
\square	Label each sample media with a unique number
$\overline{\checkmark}$	Seal sample(s) in zip lock plastic bags
\square	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental
	Samples
	Review and disseminate sample results as received from the laboratories to Project
	Manager and other appropriate managers and employees
\square	Electronically file sample reports into on-site database



Project: 3rd West Sub Station	Date: 06/21/12
Location: 3rd West, 1st South, SLC	Job Number:
Survey Conducted By: Justin Kargis	Title:

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			X	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.		i v	х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			x	
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			х	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.	25		x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.	х			
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			F

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (4)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	
1926.405 (Ь)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			*
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			х	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.	,		x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	х			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	х			
1926.102 (a) (1)	Eye and face protection shall be provided.	х			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	х			
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			Х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.		*	х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			х	
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			х	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	х			
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	,
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			х	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x		383	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

Newman placed road base and grated road around along the south side of the yard. They also worked on area inside the southwest gate.

CVE excavated for ground grid near the capacitor banks. This temporarily uncovered some native material that was kept wet and stockpiled. This stockpile was wetted and covered with plastic. Weather was hot, windy, and dry with afternoon temperatures in the high 80's.





3RD WEST SUBSTATION REMEDIATION PROJECT HEALTH SAFETY MANAGER (HSM)

	DAILY CHECKLIST
DATE:	06/22/12
Genera	· 1
	k area Health and Safety Inspection
NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
	activities for the day
Ø	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	Complete Employee Meeting Record Form B (where applicable)
NA	Document required Respirator Training completion with Form H
NA	Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA	Confirm return of waste material manifest documents for each load with site manager.
NA Con	rplete all CSHASP Forms (for applicable activities planned for that day)
NA	Illness/Injury Report Form A
NA	Site-Specific Training Record Form C
NA	Hot Work Permit Form D
NA	Trench/Evacuation Permit Form E
NA	Combined Space Entry Permit From F
	Exclusion zone operations are practiced as instructed.
	☐ Decontamination unit is working properly.
	Workers are using decontamination unit as instructed.
	Workers use personal protective equipment properly.
	Set air samples at cardinal compass points around exclusion zone. Check
	throughout the day to ensure proper operation.
	Observe control measures for dust and figitive materials i.e. watering excavation sites and track out prevention.
☑	Review sign-in/sign-out log throughout and at the end of the workday.
☑ .	Secure the site at the end of the workday
<u>Sampli</u>	n g
NA Soil	Confirmation sampling for any newly excavated areas
	Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil
	removal
NA	Digitally photograph each sample location and at any place field sampling personnel determined necessary





		Electronically file photo files into the on-site database
		Complete Field Documentation
	$\overline{\checkmark}$	Field Sample Data Sheets (FSDS)
		Logbook
	$\overline{\mathbf{A}}$	On-site computer database
abla		Label each sample media with a unique number
		Seal sample(s) in zip lock plastic bags
Ø		Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
V		Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
Ø		Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
$\overline{\mathbf{V}}$		Electronically file sample reports into on-site database



Project: 3rd West Sub Station	Date: 06/22/12
Location:3rd West, 1st South, SLC	Job Number:
Survey Conducted By: _Justin Kargis	Title:

Standard	Title	In Compliance	Out of Compliance	D N/A	Corrective Action Taken and Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.		,	х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	х			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			х	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	х			

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			х	
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			х	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.	e		x	*
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			х	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.	х			
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			х	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			

Standard	Title	In Compliance	Out of Compliance	O N/A	Corrective Action Taken and Date
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			,
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	х			,
1926.102 (a) (1)	Eye and face protection shall be provided.	х			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			×
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			x	
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			Х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			х	6.7
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	x			
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			x	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			

Management of the state of the

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

Newman continued to work on road and grading along south side of yard. They are down to just a few pieces of light equipment and the water truck.

CVE line crew worked on buss from bay 2 transformer to switchgear.

Mike Shepherd was on site in the afternoon to asses progress and discuss items as the project nears completion.

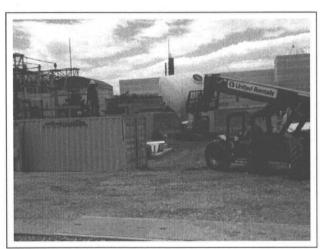
Weather was hot, breezy and dry with afternoon temperatures in the mid 90's.



РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

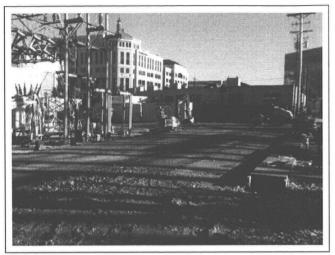
R & REnvironmental, Inc.
47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

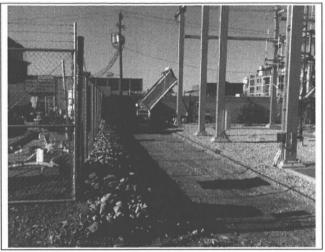
DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE 06/18/12	FILE:	

SITE PHOTOGRAPHS

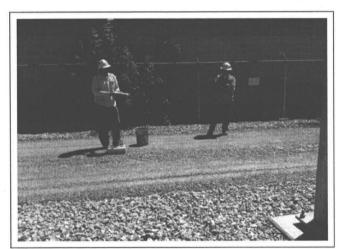




РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

R & Renvironmental, Inc.
47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE 06/19/12	FILE:	

SITE PHOTOGRAPHS

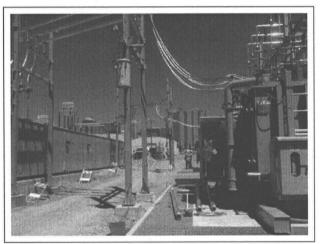




PHOTO 1



РНОТО 2



РНОТО 3



РНОТО 4

R & REnvironmental, Inc.
47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

REVIEWED BY: DESIGNED BY: SCALE: DCR DRAWN BY: DATE FILE: 06/20/12 **JMK**

SITE PHOTOGRAPHS





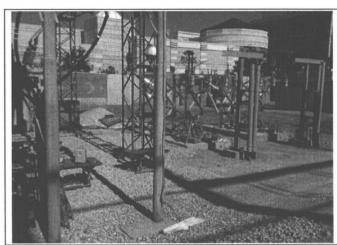
РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

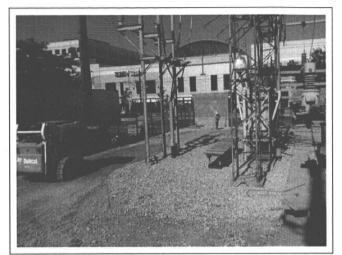
R & REnvironmental, Inc.
47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

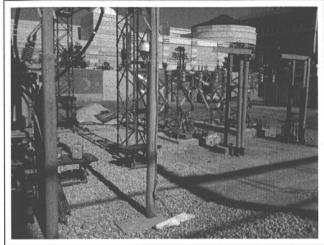
DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE 06/21/12	FILE:	

SITE PHOTOGRAPHS









РНОТО 2

R & REnvironmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE 06/22/12	FILE:	

SITE PHOTOGRAPHS



PACIFICORP OPERATIONS - Field Construction Representative Daily Log PROJECT NAME: Third West Sub - Rebuild DATE: Monday, June 18, 2012 3000078050 / 10035803 MAIN CONTRACTOR: Cache Valley Electric PO & Work Order NO. : Crew Stop Time: 17:00 Crew Start Time: Tot Hrs mns: 17:09 FCR Start Time: 6:37 FCR Stop Time: Tot Hrs mns: Use military time format 00:00 **WEATHER CONDITIONS:** Sunny - 70 degrees in AM, 97 degrees in PM DESCRIPTION: (work performed, general comments, Instructions to contractor, # of crew members onsite.) R&R set up four monitors. CVE Line Crew is working on the 2500 MCM bundled jumpers from the Xfmr #2 rigid bus to the switchgear. They removed the tri-plex service to the Decon conexes and have started installing the jumpers from Xfmr #2 to the rigid bus. CVE Fab Crew not on site today. Nevman loaded out 1 load of material to Clean Harbors for a total of 299. Newman has drained the water tank on the Decon and removed materials in anticipation of Eagle removing the shower facilities, after which Mobile Mini will pick up the conexes. The conexes have been moved to the north roadway in the 46 kV yard. CVE Line Crew = 3, CVE Fab Crew = 0, CVE Electrical Crew = Newman = 5. R&R = 1. IF WORKING IN ENERGIZED SUBSTATION: Dispatcher login, name and time: Al Swinski 0637 Dispatcher logout, name and time: Bob Gentry 1709 DISCREPANCIES: IMMEDIATE CORRECTIVE ACTION TAKEN: Discussed distance from west side of the N-S roadway between the 46 and 138 kV yards Will redline drawings to show 5', per Rick Hunting and Roger with Rick Hunting. Determined 5' of shoulder before transitioning to lower yard is Fuerst. DELAYS OR LOST TIME ENCOUNTERED:

	(workina.		

CVE Line Crew: Portable toilet (2), forklift, 1 dumpster, office trailer, conex, exclusion zone conex (2), tool trailer, Pickup, JLG (1), tool trailer. Newman: trachoe (1), bobcat, mini-ex, water truck, compactor, backhoe.

OSHA Recordable Safety Incidents: Reported by: Time:

Rocky Mountain Power

Russ Johnson

Field Construction Representative

PROJECT NAME:	Third West S	ub - Rebuild	DATE : Tues	sd a y, J une 19, 2	, 2012						
PO & Work Order NO. :	3000078050	/ 10035803	MAIN CONTRACTOR	: Cache Valle	y Electric						
Crew Start Time:	6:50	Crew Stop Time:	16:55	Tot Hrs mns:	10:05						
FCR Start Time:	6:38	FCR Stop Time:	17:05	Tot Hrs mns:	10:27						
	0.36	FCK Stop time.	17.00	_101 HIS IIIIIS	10.27						
Use military time format 00:00			•								
WEATHER CONDITIONS: ,		Sunny - 57 degre	es in AM , 68 degrees ir	ı PM							
DESCRIPTION: (work perform	ed, ge nera l c o m	ments, instructions to	contractor, # of crew me	mbers onsite.)						
the transformer, installed the 75 kva station service transformer for Xfmr #2, and worked with Newman to install the cable trench truck crossing from the 138 kv yard to the 46 kV yard. CVE Fab Crew not on site today. Newman is working on the subgrade for the N-S road between the 46 and 138 kV yards, placing road finish rock on the east and south roadways, excavated for the cable trench truck crossing between the 46 kV and 138 kV yards, and placed grade rings on Vault #6 (Cap Bank). CVE Line Crew = 3, CVE Fab Crew = 0, CVE Electrical Crew = 0, Newman = 5, R&R = 1.											
IF WORKING IN ENERGIZED S			·								
Dispatcher login, name and time:	Gus Montanez 0	· · · · · · · · · · · · · · · · · · ·									
Dispatcher logout, name and time:	Bob Gentry 1704		·								
DISCREPANCIES:			IMMEDIATE CORRECTIV	VE ACTION TA	KEN:						
		ŀ									
DELAYS OR LOST TIME ENCO	WINTERED.										
DELATS OR LOST TIME ENCO	ONTERED.										
EQUIPMENT (working, delivered, idle): CVE Line Crew: Portable toilet (2), forklift, 1 dumpster, office trailer, conex, exclusion zone conex (2), tool trailer, Pickup, JLG (1), tool trailer. Newman: trachoe (1), bobcat, mini-ex, water truck, compactor, backhoe.											
			٠								
OSHA Recordable Safety Incid	ents:	Reported	by:	Time:							
	```										
	_										

**Rocky Mountain Power** 

Russ Johnson

Field Construction Representative

PROJECT NAME:	Third West Sub	- Rebuild	DATE: Wednesday, June 20, 2012								
PO & Work Order NO. :	3000078050 / 10	0035803	MAIN CONTRA	ACTOR: Cache \	/alley Electric						
Crew Start Time:	6:50	Crew Stop Time:	17:00	Tot Hrs m	ns: 10:10						
FCR Start Time:	6:40	FCR Stop Time:	17:05	Tot Hrs m	ns: 10:25						
Use military time format 00:00		•		· ·							
WEATHER CONDITIONS:		Sunny - 61 degre	es in AM, 73 d	egrees in PM							
DESCRIPTION: (work performe	ed, general comme	nts, instructions to	contractor, # of	crew members on	site.)						
R&R set up four monitors. CVE Line grounded the south gate on the west Crew not on site today. Newman bacinto the south roadway. Newman der the site in the PM. CVE Line Crew =	side of the 46 kV yard skfilled the cable trenct mobed some equipment	i, and are assembling th h truck crossing and pla nt and materials from th	e aluminum structu ced roa <b>d</b> finish rocl e site. Lorraine <b>S</b> a	ires for C1B and C2B k on the south side to anders and Eric Brook	. CVE Fab tie the roadway						
IF WORKING IN ENERGIZED SU				·							
Dispatcher login, name and time:	Gus Montanez 0640			<del></del>							
Dispatcher logout, name and time:  DISCREPANCIES:	Manny LuHaun 1705		MACDIATE CO	DECTIVE ACTION	LTAKEN						
DISCREPANCIES:			ININIEDIATECO	RRECTIVE ACTION	I IANEN:						
,					1						
· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·			-							
<del></del>		-									
			•								
DELAYS OR LOST TIME ENCO	INTEDED:										
DELATS ON LOST TIME ENCO	ONTENED.			<del></del>							
EQUIPMENT (working, delivere	d. idle):	····	·	<del></del>							
CVE Line Crew: Portable toilet (2), forkli trachoe (1), bobcat, mini-ex, water truck,	ft, 1 dumpster, office trail	ler, conex , exclusion zone	conex (2), tool trailer	, Pickup, JLG (1), tool t	railer. Newman:						
		•									
OSHA Recordable Safety Incide	ents:		R	eported by:	Time:						

**Rocky Mountain Power** 

Russ Johnson

Field Construction Representative

PROJECT NAME:	7	Third West Sub	- Rebuild	DATE:	Thurs	Thursday, June 21, 2012				
PO & Work Order NO. :	-	3000078050 / 10	0035803	MAIN CONTI	RACTOR:	Cache Valle	y Electric			
Crew Start Time:	6:55	5	Crew Stop Time:	16:50	)	Tot Hrs mns:	9:55			
FCR Start Time:	6:39	)	FCR Stop Time:	16:55	<u> </u>	10:16				
Use military time format 00:0						Tot Hrs mns:				
-										
WEATHER CONDITIONS:			Sunny - 55 degre	es in AM, 94	degrees in	PM				
DESCRIPTION: (work per R&R set up four monitors. CV										
installed bird guard on the jum north and east of the capacitor prepping the area for yard rock CVE Electrical Crew = 0, New	banks. C\ inside the	VE Fab Crew not gate and the area	on site today. Newman	worked on the ar	ea east and	north of the sou	th gate,			
IF WORKING IN ENERGIZ	'ED SUBS	STATION:								
Dispatcher login, name and tin		us Montanez 0639	9	-			·			
Dispatcher logout, name and t										
DISCREPANCIES:				IMMEDIATE CO	ORRECTIV	E ACTION TA	KEN:			
			. <del>-</del>		<del></del>					
	-									
				<del></del>						
DELAYS OR LOST TIME I	ENCOUNT	TERED:								
				•						
EQUIPMENT (working, de	liv <b>er</b> ed, id	dl <b>e</b> ):								
CVE Line Crew: Portable toilet (: trachoe (1), bobcat, mini-ex , wate			iler, conex , exclusion zone	econex (2), tool trāi	ler, Pickup, Jl	LG (1), tool trailer	Newman:			
OSHA Recordable Safety	Incidents	s:			Reported	by:	Time:			
		•				•				

**Rocky Mountain Power** 

Russ Johnson

Field Construction Representative

PROJECT NAME:	Third West Su	ıb - Rebuild	, DATE:	Friday, June 22, 2012								
PO & Work Order NO. :	3000078050	10035803	MAIN CONTR	ACTOR : Cache Val	ley Electric							
Crew Start Time:	6:55	Crew Stop Time:	15:50	Tot Hrs mns	: 8:55							
	6:40	FCR Stop Time:	15:55	Tot Hrs mns								
Use military time format 00:00	0.10	1 Olt Grap 1ol	10.00	100111011110								
ood mintary anie format 60.00												
WEATHER CONDITIONS:	•	Sunny - 70 degre	es in AM, 97 de	grees in PM	·							
DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)  R&R set up four monitors. Jack Bottino, Owen Wahlstrom, and Bmce Jensen visited the site and blessed 151A and 151G. CVE Line												
Crew (qualified observer) backfilled gon the bus between Xfmr #2 and the south gate, prepping the area and pla on getting the N-S roadway to subgrabecause CVE has grounding to compR&R = 1.	switchgear. CVE Facing yard rock insided. Newman didn'	ab Crew not on site today. de the gate, prepping the a t take the roadway down to	Newman worked rea north of the gas subgrade so as n	on the area east and not te for oil retention, as we ot to produce any "dirty"	th of the Il as working dirt and							
IF WORKING IN ENERGIZED SU	IDSTATION.		· <del></del>	···· <u>·</u>								
Dispatcher login, name and time:	Gus Montanez 06	240										
Dispatcher logout, name and time:	Jim Bowman155											
DISCREPANCIES:	Jain Bownair 1993		MMEDIATE CO	RRECTIVE ACTION T								
SIGNIE ANGLES.				THE PARTIES OF THE PA	7.7.2.7.							
				***	-							
ĺ		•										
DELAYS OR LOST TIME ENCO	IINTERED:											
DIEMOGRAZOOT TIME ENGO	ON LIVES.											
<b>EQUIPMENT</b> (working, delivere	d, idle):				·							
CVE Line Crew: Portable toilet (2), forkli trachoe (1), bobcat, mini-ex, water truck,	ift, 1 dumpster, office		conex (2), tool traile	r, Pickup, JLG (1), tool traik	er. Newman:							
OSHA Recordable Safety Incide	ents:		F	Reported by:	Time:							

**Rocky Mountain Power** 

Russ Johnson

Field Construction Representative



June 20, 2012

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report:

RES 238345-1

Project # / P.O. #
Project Description:

None Given

3rd West Sub - RMP

R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 238345-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer

**President** 

#### RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

#### TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

**RES Job Number:** 

RES 238345-1

Client:

R & R Environmental Client Project Number / P.O.:

Client Project Description:

None Given

Date Samples Received:

3rd West Sub - RMP June 19, 2012

Analysis Type:

Turnaround:

TEM, AHERA 24 Hour

Date Samples Analyzed:

June 19, 2012

Client ID Number	ber ID Number Analyzed Volume		Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading									
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)								
3W-061812 W	EM	887373	0.0900	896	ND	0.0048	BAS	BAS								
3W-061812 N	EM	887374	0.0900	89 <b>6</b>	ND	0.0048	BAS	BAS								
3W-061812 E	EM	887375	0.0900	896						896	896	896	ND	0.0048	BAS	BAS
3W-061812 S	EM	887 <b>376</b>	0.0900	889	ND	0.0048	BAS	BAS								

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity Average Grid Opening in mm² = 0.010 Effective Filter Area = 385 sq mm

DATA QA

Due Date:	6	100	12	<b>r_</b> .
Due Time:		9:3	0/	E~~



Job # Page_

Pagar: 303-609-2098

	INVOICE TO: (IF DIFFERENT)					CONTACT INFORMATION:															
Company: [LER Environ mental	Company:					Contact: Dave Reskelly Contact															
Accress: 47W 9000 S 12	Address:					1	Phone:								Phone:						
Sandy U. 84W70						Fax:							· 	Fax							
					Cell/peger 801541-1035 Cell/peger																
Projed Number and/cv P.O. #:						Fine Date Deliverable Email Actions:															
Project Description/Localion: 3 CA West Sub-RMP	· · · · · · · · · · · · · · · · · · ·						uve	<u>@</u>	rre	wi	<u>.o.</u>	<u>~</u>	1								
ASBESTOS ABORATORY HOURS: Waekdays: 7am - 7pm		T	:		RE	QUE	STED	AN	ALY	SIS				Ι	VAL	ID N	IATRIX	CODI	ES	LAB N	OTES:
ASBESTOS CABORATORY HOURS: Waekdays: 7am - 7pm PLM / PCM   TEM   RUSH (Same Day)  PRIORITY (Next Day)	)STANDARD			Т			Т	П	ΤÏ	Т	П	Т			Air =			Bulk			
(Rush PCM = 2hr, TEH = 6hr.)		1				, )	1.		11	Ţ				1	Dust:	= D		Paint	= P		
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm		1						l							Soil =	S		Wipe	= W		
Metal(s) / Oust RUSH 24 hr3-5 Day		1	ਦ	,		ŀ						ļ	S	vab =	SW		F=F	Ooil			
RCRA 8 / Metals & Welding RUSH 5 day10 day	**Prior notification is respirod for RUSH	뒽	Quant,			<u> </u>		[	[蓬]		11	la		Drinkl	g Wa	ler = 1	DW Was	te Wat	ler = WW		
Fume Scen / TCLP ROSH 5 day 10 day	turnarounds.**	3	. §		i	8		1			11	Ě	2			_ (	) = Other	= Other			
Organica 24 tyr 3 day 5 Day		4 = 1				Metals Scan			Quantification	۶	اءِ	a a	NOTES	"AS	TM E1	1792 approved wipe media only**					
MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pr	n		. Bi						2	ននៃ	[윭]	ξĺð	INITIALS OR OTHER								
E.coll O157:H7, Collfbrms, S.aureus24 hr2 Day	3-5 Day	Long report,	7 55 F	OSHA		TCLP, Welding Fume,			14	Quantification or Orantifica	[章]	8 2	6	ł					- 1		
Salmonella, Listeria, E.coli, APC, Y & M 48 Hr3-5 Day		ĝ	<u> </u>		Respirable yte(s)	g l			1	盲	8		Š					- {	ļ		
Mold RUSH24 Hr	48 HrS DayS Day		Level II, o-vac, I	74008,	ğ (ğ	3	- [,]	7	8	ਰੋ∣੪	8	5 8	57			1 1			- 1		
**Turnaround ilmas esrabilith a laboratory priority, subject to faboratory votuma and a	re not guaranteed. Additional leas	( X (	Ä.		2 8	5	<u> </u>	된,	. 2	9 3		ع اع	Ē	l ĝ	1	ΙI		- 1			
apply for afterhours, weekands and holldaya.**	<u> </u>	[동	AHERA, Jant, Mik	7400A,	Total	5   5	- B	15.		*  <u>*</u>	3	+	80	Volume	Sog	8					
Special Instructions:		8	Ha ja		ે. જ	~   S	Salmonella:	E.coli 0157:H7:		둜녆	E E	ž į	풀	9 e	ြပ္ပိ	<u>.</u>	Date	ľ	Time	EM Numbe	
		PLB	Semi-	PCM	DUST - 1	RCRA 8,	Salmonella: +/-	<u>u</u>	3 8	ယ္ကိုပ္ပိ	S. 3	-  ≥	SAMPLER'S	Sample V( (L) / Area	Matrix	# Containers	Collecte	d C	Ollected	Use C	inly)
Client sample ID number (Sample ID's must be unique	)			<u> </u>	<u>리 불</u>	8 6	5	M	ICRO	BIOL	DGY	_	8			#	mm/dd/y		tvimm a/p		-
1 360-061812W			<b>٢</b>						$\perp \downarrow$	_				846	A		<u> હારકાર</u>	<u>.                                    </u>		881	375
2 3W-061812 N		ĿŢ							11	Ţ	Ш	L	· · · ·	896	1			<u> </u>			74
3 3W-06181Z E														896			- 1		l		75
4 3W-061812S			1			·						ŀ		889	J		J		F 1.	1	76
5									П	T											
6									$\Box$	1			: .								
7								$\top$	$\top$	$\top$											
8				$\top$	$\top$		+		1.1	+	<del>                                     </del>	1		· · · ·		-		1.			
9		H		十	+	7	╅	+	$\dagger \dagger$	$^{+}$	$\Box$	-						_		<del></del>	
10	<del></del>			$\dashv$		-	-		+	+	$\vdash$	+-		-	-				11 11		
	nal annulus aball ba listad an	اللت	od Is-				لــــــــــــــــــــــــــــــــــــــ	ــــــــــــــــــــــــــــــــــــــ					<b></b>	Ŀ	نا			ــــــــــــــــــــــــــــــــــــــ		<del></del>	
Number of samples received: (Addition NOTE: REI will analyze incoming samples based upon information received and will not be re-	nal samples shall be listed on asponeible for en ore or omissions in ca					accura	cy Of or	iginal (	data 8	y sign	ing dia	ntfcon	npany rei	presentativ	o agra	es that	submission	n otthe f	oilowing sam	ples for requests	d
enalysis as indicated on this Chain of Custody shall constitute an enelytics services agroom	ont with payment tarms of NET 30 days	a, fellure	10 001	ply with	h peyme	ni tem	s may r	esult l	n a 1.0	% mo	nthly in	teres!	Surcharg	18.							
Relinquished By:	Fed Ex			Date/	Time:	6/10	glı z							Sa	mple	Cond	lition:	On Ic	Se and Se	aaled In	tack
Laboratory Use Opty	e/Time: 6/19/17				Car	rrier:	Fed	eγ	793	60	455	63	312	Te	-	F°) _		Yes /		sullo de	s/W
Resulls: Contact Phone Email Fax Date	Time ( Initia	als	Cor	tact					Emai					Dale e	چے	4	1	ime <	943	Inilials =	4
Contact Phone Email Fex Date	Time Initio	als	Cor	tact			Pho	опе	Ejiraj	Fa				Date '				ima		Initials	

### **Attachment I**

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

## <u>Asbestos Type</u> <u>Structure Types</u>

Α	=	Amosite	$\mathbf{F} =$	Fiber
An	_	Anthophyllite	B =	Bundle
C	-	Chrysotile	C =	Cluster
Cr	=	Crocidolite	M =	Matrix
T	=	Tremolite		

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

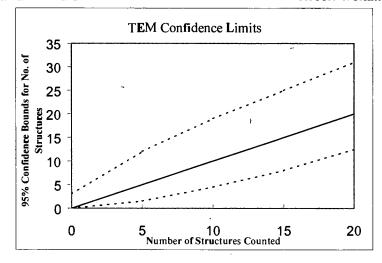
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

#### **TEM Analysts**

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

# Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	∠20KX >10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0,28 um
Scale: 1D =	0.056 um
Primary filter area (mm2) Secondary Filter Area	385
(mm2)	
QA Type	

Client :	2+R
Samole Type (A=Air, D=Dus0:	A
Air volume (L) or dust area (cm2)	896
Oate received by lab	6/19/12
Lab Job Numben	238345
Lab Sample Number:	887373

Analyzed by	-th
Analysis date	6/19/12
Method (D=Oirect, I=Indirect, IA=IndIrect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	ÄH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps	F-Factor Calculation (Indirect Preps Only):						
Fraction of primary filter used							
Total Resuspension Volume (ml)							
Volume Applied to secondary filter (ml)							

Grid	Grid Opening Structure		No. of Structures		Dimensions		Identification	Mineral Class				1 = ves, blank = no		
Ond	Ond Opening	Туре	Primary	Total	Length	Width	Identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
1	K3-1	W												
	431	$\mathcal{M}$												
	C73-L	8			oner	A	SUSI	utuet:	52/10	12 le	elino			
	234	M												
	(34	M			Phe	136	0700	ence 52	10%	leb,	W			ď
\$	62-4	M												
	F2-4	N												
	824	M												
	231	W										!		

#### Reservoirs Environmental, inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Maanification	20KX 10KX
Grid ooenina area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2) Secondary Filter Area	385
(mm2)	
QA Tyoe	

Client:	2tR
Sample Type (A=Air, D=Dusl):	A
Air volume (L) or dust area (cm2)	896
Date received by lab	6/19/12
Lab Job Number:	238345
Lab Sample Number:	887374

F-Factor Calculation (Indirect Preos	Only):
Fractism of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

<u>_</u>		·
Analyzed by	-0	2
Analysis date	6/1	9/12
Method (D=Oirect, I=Indirect, IA=Indirect, ashed)		<b>)</b>
Counting rules (ISO, AHERA, ASTM)	Al	}-
Grid storage location	Month A	haiyzed
Scope Alignment	Date A	) alyzed

Grid	Grid Grid Opening		No. of Structures		Oimensions		Identification	Mineral Class				1 = y	= no	
·	Grid Opening	Туре	Primary	Total	Length	Width	identification	Amphibola C NAM		Sketch/Comments	Sketch	Photo	EDS	
1	14-1	M					·			i				
	K4-1	M												
	HU-1	M			ther	A	10% m	fact 5	2.0	lebn	. 7			!
	CB-1	M												
	F3-3	M				rey 1	B70% (	Nact 50	Sola	biz				
B	25-3	M											·	
700	25-3	M												
	C5-3	M												
	153	ND												
							·							

# Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	211KX 10KX
Grid ooenina area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filler area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client:	2tR
Sample Type (A=Air, D=Dusi):	A
Air volume (L) or dust area (cm2)	896
Date received by lab	6/19/12
Lab Job Number:	238345
Lab Sample Number:	887375

Analyzed by		-	10	<
Analysis dale		6	1	3/12
Method (D=Direct, l=Indirect, IA ashed)	=Indirect,			>
Counting rules (ISO, AHERA, ASTM)	•	- }	1+	<del> </del> -
Grid storage location		Mon	th A	nalyzed
Scope Alignment		Dat	e Ar	jalyzed
	1			ļ ·

F-Factor Calculation (Indirect Preps Only):						
Fraction of primary filter used	:					
Total Resuspension Volume (mi)						
Volume Applied to secondary filler (ml)						

Grid	Crid Opening	Structure	No. of Str	nictures	Dimensions Identification Mineral Class		1 = yes,		es, blank :	blank = no				
GIN	Grid Opening	Туре	Primary	Total	Length	Width	identification	Amphibofe			Sketch/Comments	Sketch	Photo	EDS
1	64-3	W												
	PM-3	M			Por	ep A	るグ	Wast i	12	Leb	~ ~			
	EM-3	M					<i>U</i> .							<u> </u>
	W-3	M					;							
	B43	M		<u>.</u>	R	er 1	60%	wheel	53.	Lake				
B	E4-4	M												
	Mry	MÓ												
	45-1	M								·				
	651	M									)			
							·							

#### Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Maanification	20KX >10KX
Grid openina area (mm2)	0.01
Scale: 1L=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	2+R
Sample Type (A=Alr, D=Dust):	A
Air volume (L) or dust area (cm2)	896
Date received by lab	6/19/12
Lab Job Number:	238345
Lab Sample Number:	887376

ab Sample Number:	887376
F-Factor:Calculation (Indirect Preps C	Only):
raction of printery filter used	
otal Resuspension Voluma (mi)	
/olume Applied to secondary filler (ml)	

<u> </u>		
Analyzed by	a	12
Analysis date	6/1	9/12
Method (D=Direct, !=Indirect, IA=Indirect, ashed)		D
Counting rules (ISO, AHERA, ASTM)	Al	}- }
Grid storage location	Month A	nalyzed
Scope Allanment	Date A	ialyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	Dimensions Ideniification Mineral Class					1 = ye	s, blank	= no	
	Jila Operang	Туре	Primary	Total	Length	Width	- derininganori	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
1	65-4	$\mathcal{M}$									·			
	F5-4	W				Me	PA:	2/3 None	45	-107	debnis		·	
1	95-4	$\mathcal{M}$												
	CSM	M				Rer	Bif	7						
	155M	M												
	ASM	M												
B	C4-4	M												
	BUM	M												
	AU Y	M						•						

#### Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

#### **Equations Used for Calculations**

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, s/cc =  $\frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$ 

Filter loading, s/mm² =  $\frac{\text{\# Asbestos structures}}{\text{Area Analyzed (mm}^2)}$ 

GO = TEM grid opening



June 21, 2012

Laboratory Code:

**RES** 

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 238435-1 None Given

**Project Description:** 

3rd West Sub - RMP

Eidon Romney R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 238435-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer

President

#### RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

#### TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 238435-1

Client:

Client Project Number / P.O.:

R & R Environmental None Given

Client Project Description:

Date Samples Received:

3rd West Sub - RMP

Analysis Type;

June 20, 2012

Turnaround:

TEM, AHERA 24 Hour

Date Samples Analyzed:

June 21, 2012

Client ID Number	Lab ID No	Lab ID Number		umber Analyzed Vo		Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading	
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)			
3W-061912 W	EM	887555	0.0900	885	ND	0.0048	BAS	BAS			
3W-061912 N	EM	88755 <b>6</b>	0.0900	885	ND	0.0048	BAS	BAS			
3W-061912 E	EM	887557	0.0900	885	ND	0.0048	BAS	BAS			
3W-061912 S	EM	887558	0.0900	885	ND	0.0048	BAS	BAS			

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in mm² = 0.010

Filter Material = Mixed C ellulose Ester Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm

DATA QA

0/1 / 0/10	
Due Date	-
Due Time: SIS	

Results:

Contact

Contact

Ptighe Email Fax

Ptione Email Fax

Date

Date

Time

Time

Initials



Page _

Pager: 303-569-2096 INVOICE TO: (IF DIFFERENT) **CONTACT INFORMATION:** company. Keil Environmente Contact Drive Roskelle Company: Address: Phono: WRAGOS "Z Faoc Sand, 14. 84070 Coll/pagon Project Number end/or P.O. #; Project Descripaon/Location: direcorrences.co. 300 West Sub PRAY REQUESTED ANALYSIS ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm **VALID MATRIX CODES** LAB NOTES: RUSH (Same Day) * PRIORITY (Next Day) STANDARD Air = A Bulk = B (Rush PCM = 2hr, TEM = 6hr.) Dust = D Paint = P CHEMISTRY LABORATORY HOURS: Weekdays: 8am - Spm Soil = S Wipe = W ____RUSH ____ 24 tir. ___3-5 Day Metal(s) / Dust Swab = SW F = Food Quant **Prior notification la RCRA 8 / Metals & Welding Drinking Water = DW | Waste Water = WW Point Count RUSH ___ \$ day __ 10 day required for RUSH Plate Count +/- or Quantificati Fume Scan / TCLP O = Other - AHERA, Level II, 7402, ISO, +/-, quant, Micro-vac, ISO-Indirect Preps turnarounds." Organics 24 hr. ___ 3 day ___ 5 Day "ASTM E1792 approved wipo media only" MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - Spm METALS · Analyte(s)
RCRA 8, TCLP, Welding Fume, OSHA E.coll O157:H7, Coliforms, S.aureus 24 hr. ___2 Day 48 Hr. 3-5 Oay Salmonella, Listeria, E.coll, APC, Y & M RUSH ___ 24 Hr _ 48 Hr _ 3 Day Mold Short report, ORGANICS - METH "Turnaround times establish a laboratory priority, subject to laboratory volume and are not quaranteed. Additional fues apply for afternours, wookonds and nolidays.** Matrix Code Special Instructions: (L) / Area EM Number (Laboratory Oale Time Uso Only) Collected Collected Client sample ID number (Sample ID's must be unique) MICROBIOLOGY mm/dd/vv hivmm a/p 335 Llalız 69.7555 3W-061912W 885 3W-061917_N Sz Š\$S 30 OE1912 F 57 *35*5 િક N-061912 6 8 9 10 Number of samples received: (Additional samples snall be listed on attached long form.) NOTE: REI will onalyzs Incoming samples based upon information received and will not be responsible for errors or emissions in calculotions resulting from the inaccuracy of original data. By signing cleretoes trative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody stant-constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surescarge. Date/Time: 6/19/12 Relinquished By: Sample Condition: On loe Sealed Intact Laboratory Use Odly Temp. (F°) Yes / No Yes / No Yes / No Received By: Date/Time:

7-2011_version 1

Phone Email Fax

Phono Email Fax

Date

Date

Time

Time

Initjals

Initials

Contact



June 22, 2012

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 238532-1 None Given

Project Description:

3rd West Sub - RMP

Eldon Romney R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 238532-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer

President

#### RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

#### TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

**RES Job Number:** 

RES 238532-1

Client:

R & R Environmental

Client Project Number / P.O.:

None Given

Client Project Description: Date Samples Received:

3rd West Sub - RMP

Analysis Type:

June 21, 2012

Turnaround:

TEM, AHERA 24 Hour

Date Samples Analyzed:

June 22, 2012

Client ID Number	Lab ID No			Area Air Analyzed Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W-062012 E	EM	887818	0.1000	594	ND	0.0065	BAS	BAS
3W-062012 N	EM	887819	0.0900	934	ND	0.0046	BAS	BAS
3W-062012 W	EM	8878 <b>2</b> 0	0.0900	934	1	0.0046	0.0046	11.1
3W-062012 S	EM	8878 <b>2</b> 1	0.0900	934	ND	0.0046	BAS	BAS

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in mm² = 0.010

Filter Material = Mixed Cellulose Ester Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm

DATA QA

Reservoirs Environmental, Inc Reservoirs Environmental OA Manual

#### RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

#### TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number:

RES 238532-1

Client:

R & R Environmental

Client Project Number / P.O.:

None Given

Client Project Description:

3rd West Sub - RMP

Date Samples Received:

June 21, 2012

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

June 22, 2012

Client	Lab		Asbestos					Structures	**Excluded	Asbestos
ID Number	ID No	umber	Mineral					>5 Microns	Structures	Structures
				Asl	bestos Str	ucture Ty	pes*	in Length		for
				Fibers	Bundles	Clusters	Matrices	,		Concentration
3W-062012 E	EM	887818	ND	0	0	0	0 0	0	0	0
3W-062012 N	EM	887819	ND	0	0	0	0	0	0	0
3W-062012 W	EM	8878 <b>2</b> 0	Chrysotile	1	0	0	0	0	0	1
3W-062012 S	EM	8878 <b>21</b>	ND	0	0	0	0	. 0	0	0

^{*}See Analytical Procedure for definitions

ND = None Detected

^{**}C = Excluded from total due to lack of confirmation

^{**}L = Excluded from total for length less than 0.5 micron (AHERA only)

^{**}A = Excluded from total due to i ncorrect as pect ratio

Oue Date:_	C122-12
Due Time:	<u>-e</u>

## REILAB Reservoirs Environmentet, Inc.

		ger : 303- <b>5</b> 06			. 505 50	J-1300	. LBY	303-17	1-421	o 1 Oil	rise	.000.	ESPE	NY						Page	_! 01 _	<del></del>
	INVOIC	ETO: (IF	DIF	FERE	NT)							_		_ CC	ONTAC	TIN	FOR	TAMS	ION:			
Company (Company Company Compa	Company:						Conta	act ()	ave	- Re	756	elle	./				Conta	act				
Address: 47 W 90005 #2	Address:						Phon	0:					-				Phon	a:				
Sandy W. 84070							Fex.										Fax:					
							Ceit/p	osger. I Data D	80	f Sc	ΊŪ-	103	<u> </u>				Cell/p	pager.				
Project Number and/or P.O. #:							Fins															
Project Description/Location: 3 West Sub-KMP							L	da	ve	0,	rre	mir	0.0	im								
ASBESTOS LABORATORY HOURS: Weekdays: 7aiii - 7pm		4. [[] [] [] [] [] []		11 A-		RE	QUE	STE	DAN	ALY	SIS		7 V 1	1.11		VAI	ID N	ЛÄТГ	RIX CC	DES	LAB	NOTES:
PLM / PCM (TEM) RUSH (Samo Day) PRIORITY (Next Da						Ţ			П	TI	T	TT	$\top$			Air =	Α	$\neg$	В	ulk = B		
(Rush PCM = 2hr, TEM = 6hr.)			l		1		ı İ					1 [			C	)ust :	= D	$\neg$	Pi	aint = P		
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm		1 1 1 1 1 1 1 1	1 ∤					1	1 1	-		11	1 1			Soil =	- S	$\neg$	W	ipe = W		
Metal(s) / Dust RUSH 24 hr 3-5 Day			1	낲	1 1						ļ	11	11		Sv	vab =	: SW	$\neg$	F	= Food		
RCRA 8 / Metals & Welding	**Prior notifical		=	Quant,		-	_			ទ្ធ	İ	11	اءا		Drinkin	a Wa	ter =	DW	Waste	Water = WW		<del></del>
Fume Scan / TCLP RUSH 5 day10 day	required for R turnarounds		18	, ⊱ Zebs	1	1	3	Ì	1 1	3	Ì		딅	S	1	×		0=0			· · · · · · · · · · · · · · · · · · ·	
Organics 24 hr 3 day 5 Day	14111-1541145	•	Point Count			İ	Metals	-		Quantifical	١,		antification	ğ	**AST	M E1	792 a	pprov	ed wipe	media only**		
MICROBIOLOGY LABORATORY HOURS: Weekdaya: 9am - 6p	m	T. 1	ا ية إ	30 SS					11	171	offication Orantification	ğ,	8	Ř								
E.coli 01S7:H7, Coliforms, S.aureus 24 hr 2 Day	3-6 Day		§	, 7402, ISO-Indi	≰	- 1	Figme,	-	1 1	ğ		<u>3</u>  }	اءا	Ĕ	ł	1	{ ;					
Salmonella, Listeria, E.coli, APC, Y & M 48 Hr3-S Da	у			¥ 8	OSHA	<u>₽</u>	맆		1	+	활동		1.6	Ř	1			ĺ			<del></del>	
Mold RUSH24 Hr	_48 Hr3 Day _	5 Day	Long	3, Fe	g	[ 등	gug		<b>‡</b>	팋	S b			တို	1		1	l l				
*D'urnaround three establish a laboratory priority, subject to laboratory yolume and	are not guarenteed. A	iditional feca	চূ	5 5	7400B,	Respirable ivte(s)	` ≱	計	토	ုဒ္ဓု	5 1	[].	5[월[	₹	٠		1 .	ı		l		
apply for afterhours, weellends end holidays."			Ē	≴ క్ర	4	4 E	TCLP,	¥   ig	<u>  [2</u>		÷   ;	دا ال	ا ـ ا ا	Ĭ	Volume	به ا	2	l				1 1 1 4
Special instructions:			Sport	AHERA, Rant, Mik	7400A	- Total, LS - Ana	٤	S   §		를 <u>-</u>		a   3	:   *	7. S	2° g	Code	ine	i			EM Numb	Jer (Laboratory
·			1 • 1	ਾ ਉਂ	1.1	ដូ∐នី	8	Selmone	E.co8 0157	1 P	Coliforns:	S.aureus:	Mold	₹	ಕ್ಷಕ್ಷ	<u>غ</u> .	Containers	l .	ate	Time		Only)
Client sample ID number (Sample ID's must be unique	e)		2	Sem i	PCM PCM	DUST	RCRA 8.	ORGANICS - METH Selmonella: +/-		MCRO				SAMPLER'S INTIALS OR OTHER NOTES	Sample V( (L) / Area	Matrix	Ŭ #		ected /dd/yy	Collected		
1 3W-062012 E				×		_			$\prod$	TT			T		594	A			عااعا		99.	7318
2 3W-06ZE12 N		75. 1. 1.		Ť	11				11					· 1.	934	17		Ť				( (9
3 3W-067E12 W				7				_	11		$\top$		1		934	+	1-			<u> </u>		24
434-062012 5		19.4.7				+			1.	ीरी	+	1	+	· ·	934					<del></del> -	1	7 21
5	<u></u>			•	++		<del></del>		1-1	+	╁		+			*	+		<u></u>	· · · · · · · · · · · · · · · · · · ·	<u> </u>	
6	3 15 41 43 5						::		1	1/1	<del>d.</del>	1-1-	+1	<del></del>	77		1		<del></del>			
7				· · · -			ᆉ		H	+	-	H	+ 1	1.004	-	+	1	<u> </u>			<del> </del>	
8 0 4 4 5 5 5 5 7 4 5 5 5 6 7 4 5 5 6 7 4 5 6 7 5				. : :	1-1	-	$\rightarrow$	-	11			+ -	+ 1		: 45.	+		1.7		1		
9		·: · · · · · · ·			+	$\pm$		A - 134	++		1		+	<u> </u>		+-	+-		<u> </u>		<del> </del>	<del></del>
10	<del></del>	. :	-	-	<del> </del>	+	$\rightarrow$	-	$\downarrow \downarrow$	+	+	╁┼	1			1.	-	.:		-	<del> </del>	<del></del>
			ليا		اند				للل		_			<u> </u>	<u> </u>	ني أذ	نبيل			<u> </u>	<u> </u>	
NOTE: REI will analyze incomino samples based #purniffrination received and will not be analysis as indicated on this Chain of Custody shall constitute snanalytical services agreed.	onal samplas shall responsible for enors or nent with payment terms	omissions in ca	alculali	lons rea	uting fo	on: the li	neccus	acy ol o	original	data. S	By aign	ning clie	nt/corr	pany Te	casenialk	ve aer	eos th	al Gubtv	vasion of	the following sa	mples for reque	sted
	red Ex							7	7							$\rightarrow$	_	=				
Relinquished By: Laboratory Use Only	ectx				Date	/Time:	6	(८५	<u>72</u>									dition		Dnilce S es/Nb Y		Inlact Yes√No
Received By: Ua	ate/Time:	ع حال		9		Ca	rrier:	_	2	1	5	۷			'' ^e	mp.	(F°)			BOTIND I	63 / NO <	3
Resulls: Conlact	Time	Initi	als	Co	ntact			PI	hone	Émai	i F	х			Date				Tim	e	Initials	
Contact Phone Email Fex Date	Time	Initi	als	Co	ntact			PI	none	Emai	r fa	x			Date				Tim	.e	Initials	

45 7585 2511 27n 7-2011_version 1

#### Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

# Asbestos Type A = Amosite An = Anthophyllite C = Chrysotile Cr = Crocidolite Structure Types F = Fiber B = Bundle C = Cluster M = Matrix

T = Tremolite

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

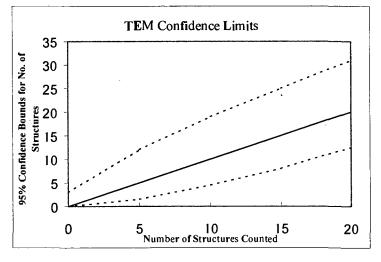
Sizing Conversion

1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

#### **TEM Analysts**

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

# Reservoirs Environmental, Inc. TEM Asbestos Structure Count

	251
Laboratory name:	REI
Instrument	JEOL 100 CX N(S)
Voltage (KV)	100 KV
Magnification	(20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	RAR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	594
Dale received by lab	6/21/12
Lab Job Number:	238532
Lab Sample Number:	887818

F-Factor Calculation (Indirect Preps	Only):
Fraction of primary filtar used	ļ
Total Resuspension Volume (ml)	
/olume Applied to secondary filter (ml)	

Analyzed by	B
Analysis date	6/21/12
Method (D=Dlrect, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Montti Analyzed
Scope Alignment	Oate Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Oime	nsions	Identification	Mineral Class				1 = y	es, blank	= no
	of the opening	Туре	Primary	Total	Length	Width	Tuo Hangadion	Amphibole	С	NAtvi	Sketch/Comments	Sketch	Photo	EDS
A	44-4	ND												
	44-4	ND			PC	ep	A 8	Obe inta	ct	5%	Colebus			
	6-4	M			Pu	2	B 90	hount	E	5%	debus			
	F4-4	ND				· ·			<u> </u>					
	E4-4	ND						13	6/2	2/12				
13	K4-3	MD						7	/	/				
	H4-3	M						/-						
	64-3	M												_
	F4-3	M												
	E4-3	ND												

Reservoirs Environmental, Inc. TEM Astrestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N(S)
Voltage (KV)	100 KV
Magnification	(20K) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	RXR
Sample Type (A=Air, D=Dust);	LA
Air volume (L) or dust area (cm2)	934
Date received by lab	6/21/12
Lab Job Number:	238532
Lab Sample Number:	887819

Anatyzed by	B
Analysis date	6/21/12
Method (D=Dlrect, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage lacation	Month Analyzed
Scope Alignment	Date Analyzed

Fraction of primary Rier used	
Total Resuspension Volume (mi)	
Volume Appliad to secondary filter (ml)	7:

Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	nsions	Identification	Mineral Class	Mineral Class			1 = yes, blank = no		= no
Cita	Ond Opening	Туро	Primary	Total	Length	Width	, acrianced on	Amphibole	С	NAM	Sketch/Gommenta	Sketch	Photo	EDS
A	H4-6	ND				· ·								
	64-6	ND			P	a A	-B	~ 80% .y	Int	-	3-5% del	zu>		
	F4-6	ND			 	( 		11	/ 					
	E4-6	ND						41	6	22/	R			
	C4-6	ND						/ (		T				
B	F33	ND						7						
	E3-3	20												
	E3-1	ND												
	1:3-1	M				·								

Month Analyzed

Date Analyzed

Reservoirs Environmental, Inc.
TEM Asbestos Structure Count

Laboratory name:	REI
instrumeni	JEOL 100 CX N(S)
Vollage (KV)	100 KV
Magnification	(20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Туре	

Client:	RAR
Sampla Type (A=Air, D=Dust):	I A
Air volume (L) or dust area (cm2)	934
Dale received by lab	6/21/12
Lab Job Ntimber:	238532
Lab Sample Number:	887820

Grid storage loca	tion
Gilu storage loca	uon
Scope Alignment	·

Analysis date
Method (D=Direct, I=Indirect, IA=Indirect,

Analyzed by

F-Factor Calculation (Indirect Preos	Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Appliad to secondary filter (ml)	

Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	nsions	Identification	Identification Mineral Class			1 = ye	es, blank	= no	
		Туре	Primary	Total	Length	Width		Amphibole	c	NAM	Sketch/Comments	Sketch	Photo	EDS
A	H3-4	ND				Pus	A 80	Defour hu	L	3-5	Lockons			
	63-4	ND				. 1								
	F3-4	F		1	2		(D		W					
	F3-4	ND												
	C3-4	M				1	ho B	70 hinh	nt i	5-5	% debns			
13	H3-4	ND							11-					
	613-1	ND							15	6/2	2/12			
	F3-4	20							1		1			
	E3-4	M												

LA = Libby-type amphibola

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

# Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instmment	JEOL 100 CX N(S)
Vollage (KV)	100 KV
Magnification	(20K) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
	385
Primary filter area (mm2) Secondary Filter Area (mm2)	389
QA Type	

Client:	RAR
Sample Tyoe (A=Alr, D=I)ust):	A
Air volume (L) or dust area (cm2)	934
Date received by lab	6/21/12
Lab Job Number:	238532
Lab Sample Number:	887821

Analyzed by	B
Analysis date	6/21/12
Method (D=Dirsct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Stope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps (	Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Voluma Applied to secondary filter (ml)	

Grid	Grid Opening Structur		No. of Str	uctures	Dime	nsions	Identification	Mineral Class				1 = y	es, blank	≖ no
O.K.	Ond Opening	Туре	Primary	Total	Length	Width	ide i (incedent	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	64-1	'ND						<i></i>						
,	HU-1	M			Pn	A	95%	inhut	3	-5%	debus			
	64-1	ND			Po	OB	100%	inhat	3-	5%	delay			·
	F4-1	70						16						
	E4-1	ND						13	1/22	/12				
B	13-3	ND							1					
	63-3	MD												
	F3-3	MD												
	E3-3	ND												
		,												

#### Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

#### **Equations Used for Calculations**

Area Analyzed,  $mm^2 = \# GO \text{ counted } x \text{ Average } GO \text{ Area } (mm)$ 

Concentration, 
$$s/cc = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$$

Filter loading,  $s/mm^2 = \frac{\# \ Asbestos \ structures}{Area \ Anaiyzed \ (mm^2)}$ 

GO = TEM grid opening



June 23, 2012

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 238640-1 None Given

**Project Description:** 

3rd West Sub - RMP

Eldon Romney R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer.

Resenvoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AlHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 238640-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer

President

#### RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

#### TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 238640-1

Client:

Client Project Number / P.O.:

R & R Environmental None Given

Client Project Description:

3rd West Sub - RMP

Date Samples Received:

June 22, 2012

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

June 22, 2012

Client ID Number	Lab ID Number		Area Analyzed	Air Volume Sampled	Number of Asbestos Structures	Analytical Sensitivity	Asbestos Concentration	Filter Loading	
			(mm²)	(L)	Detected	(s/cc)	(s/cc)	(s/mm²)	
3W-062112 E	EM	888114	0.0800	966	ND	0.0050	BAS	BAS	
3W-062112 N	EM	888115	0.0800	966	ND	0.0050	BAS	BAS	
3W-062112 W	EM	888116	0.0000	966	NA	Sample rejected due to non-preppable filte			
3W-062112 S	EM	888117	0.0800	964	1	0.0050	0.0050	1 <b>2</b> .5	

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity
Average Grid Opening in mm² = 0.010

Effective Filter Area = 385 sq mm

ll

Opporty oppositive Electron City Conv. Electron Conv. Electron Electron Conv. US. On "Resources Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv. Electron Conv.

DATA QA

Reservoirs Environmental, Inc Reservoirs Environmental QA Manual

Effective January 1, 2012
T:\QAQC\Lab\Reservoirs Environmental QA Manual.doc

#### . RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101898-0; TDH: #30-0015

#### TABLE 1. SUMMARY OF ANALYTICAL DATA

RES Job Number:

RES 238640-1

Client:

R & R Environmental

Client Project Number / P.O.:

None Given

Client Project Description:

3rd West Sub - RMP

Date Samples Received:

June 22, 2012

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

June 22, 2012

Client	Lab ID Number		Asbestos Mineral					Structures	**Excluded	Asbestos
ID Number				Asbestos Structure Types*				>S Microns in Length	Structures	Structures for
			· -	Fibers		Clusters		<u></u>		Concentration
3W-062112 E	EM	888114	ND	0	0	0	0	0	0	Ō
3W-062112 N	EM	888115	ND	0	0	0	0	0	0	0
3W-062112 W	EM	88811 <b>6</b>	NA					•		
3W-062112 S	EM	888117	Chrysotile	1	0	0	0	0	0	1

^{*}See Analytical Procedure for definitions

^{**}C = Excluded from total due to lack of confirmation

^{**}L = Excluded from total for length less than 0.5 micron (AHERA only)

^{**}A = Excluded from total due to i ncorrect aspect ratio

ND = None Detected

Due Date: 42312 Due Time: 905

## RESERVOITS ENVIRONMENTALS. INC... S801 Logan St. Osnvei, CO 80216 • Ph: 303 984-1986 • Fax 303-477-4275 • Toti Frae :886 RESI-ENV

Page 1 of (___

INVOICE TO: (IF DIFFERENT) CONTACT INFORMATION: Company: RER Environmental Contact Dave Reskeller Company Contact; Address: 47 W 96005 #2 W. Swro Fax: Call/pager Cell/pagar Project Number and/or P.O. #: Final Data Delivambla Ernail Addresa: Project Description/Location: 350 West Suis - RMP dave @ rrenviro. com ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm REQUESTED ANALYSIS VALID MATRIX CODES LAB NOTES: RUSH (Same Day) PRIORITY (Next Day) STANDARD Air = A Bulk = B (Rush PCM = 2hr, TEM = 6hr.)Dusi = D Paint = P CHEMISTRY LABORATORY HOURS: Weekdays: 8am - Spm Soil = S Wipe = W ___ RUSH 24 hr. 3-5 Day Metal(8) / Dust Swab = SW F = Food Quant, **Prior notification la RCRA 8 / Metals & Welding Drinking Water = DW Waste Water = WW RUSH 5 day 10 day required for RUSH Fume Scan / TCLP ÷ de O = Other turnarounds.** Organics 24 hr. 3 day 5 Day **ASTM E1792 approved wipe media only** õ MICROBIOLOGY LABORATORY HOURS: Weekdays: 8am - 6pm METALS - Analyte(s) RCRA 8, TCLP, Welding Fume, E.coll O157:H7, Coliforms, S.aureus 24 hr. 2 Day Salmonella, Listeria, E.coll, APC, Y & M 48 Hr. ___3-5 Day 24 Hr Mold RUSH 48 Hr 3 Day 5 Day **Turneround times establish a laboratory priority, aubject to laboratory yolume and are not guanmtead. Additional fee apply for afterhours, weekends and holidays." Special Instructions: EM Number (Laborator Dale Time Use Only). Collected Collected Client sample ID number (Sampla ID's must be unique) mm/dd/yy hh/mm a/n 3W-062112 E 父ろひに牛 966 3W-062112 W مو آ W-067112 S 9 Number of samples received: (Additional samples shall be listed on attached long form.) NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original date. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this County of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in b 1.5% monthly interest surcharge ed Ex Relinguished By: Date/Time: Sample Condition: On Ice Sealed Intacl Laboratory Use Only Temp. (F°) Yes / No Yes / No (¥eş/No 62212 C SOF Date/Time: Received By: Results: Chode Email Fax 122 Tima & 30 Olnitials Contact ///Contact Date / Date Time Inilials Contact Phone Email Fax Date Inilials Phone Email Fax Contact Date Time Initials

# **Attachment I**

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type	Structure Types
A = Amosite An = Anthophyllite C = Chrysotile Cr = Crocidolite	F = Fiber B = Bundle C = Cluster M = Matrix
T = Tremolite	

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

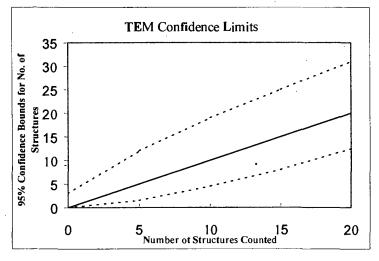
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

## **TEM Analysts**

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

## Reservoirs Environmental, 1nc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area	
(mm2)	

Client :	R+R
Sample Type (A=Air, D=Dust):	A
Air yolume (L) or dust area (cm2)	966e
Date received by lab	6/22/12
Lab Job Number:	238640
Lab Sample Number:	इहहा। प
	,

F-Factor Calculation (Indirect Preps Only):				
Fraction of primary filter used.				
Total Resuspension Volume (ml)				
Volume Applied to secondary filter (ml)				

	··
Analyzed by	-w
Analysis date	6/22/12
Method (D=Direct, I=Indlrect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions Identification		Dimensions		Dimensions Identification		Mineral Class		·	1 = yes, blank = no		= no
,		Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS			
A	936	M							<u> </u>								
	F3-6	W			Prep	A	50% in	ence 52.	deb	r<1							
	836	m			 						٩						
	(36	M).				ner!	3~H										
B	F3-1	M															
	23-1	QV				· · · · · · · · · · · · · · · · · · ·					ę.						
	(2-1	W						:		·							
	03-1	M															
					·		·										

# Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification_	(20K) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area	363
(mm2) QA Type	•

Client :	R+R
Sample Type (A=Alr, D=Dust):	A
Air yolume (L) or dust area (cm2)	966
Date received by lab	6/22/12
Lab Job Number:	238640
Lab Sample Number:	888115
	1

F-Factor Calculation (Indirect Preps O	nly):
Fraction of primary filler used	
Totel Resuspension Volume (ml)	
Voluma Applied to secondary filter (mi)	

Analyzed by	M
Analysis date	6/22/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	Identification	Identification	Identification	Identilication	Identification	Identification	Identification	Identification	Identification	Identification	Identification	Mineral Class	lineral Class		]-	1 = yes, blank = no		= no
Sild	Ond Opening	Туре	Primary	Total	Length	Width	identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS											
A	H2-3	M					į																		
	92-3	M			Dra	, p =	10% IN	act 10%	elori	)															
	F7-3	M			-									l !											
	F3-4.	M			(	Purey	15 60%	interest by	selas	600 5															
B	15.3	M				ļ 																			
	65-3	M.																							
	FS-3	M																							
	66-3	MO						,																	

LA = Libby-type amphibola

OA = Other (non-Libby lype) amphibole

C = Chrysotile

NAM = Non-asbestos malerial

T:\Worksheet in TEM Bench sheet.doc

# Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
OA Type	

R+R
A
966
6/22/12
238640
888116

F-Factor Calculation (Indirect Preps Only):						
Fraction of primary filter used	1					
Total Resuspension Voluma (ml)						
Volume Applied to secondary filter (mt)						

Analyzed by	-lk
Analysis date	6/22/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	Mineral Class			]	1 = y	es, blank	= no
Gild	Ond Opening	Туре	Primary	Total	Lenath	Width	i dentinearion	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A				,	-							•		
					Pag	ected	due	to non-p	reppor	ونو	filter			
	1.							·			_			
									1					

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

T:\Workeheet in TEM Banch sheet.doc

#### Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	(20K) 10KX
Grid opening area (mm2)	0.01
Scale: 1L=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	966
Date received by lab	6/22/12
Lab Job Number.	238640
Lab Sample Number	588117

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used

Total Resuspension Volume (ml)

Volume Applied to secondary filter (ml)

40	,
7	
	_

Analyzed by	-MC
Analysis date	6/22/12
Method (D=Direct, l=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
GrM storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	Mineral Class				1 = y	es, blank	= no
Gilu	Grid Opening	Туре	Primary	Total	Lenpth	Width	Identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	1=3-3	M				·								
	€3-3	NO		2	res A	80%	Interes	5-10/	lobor	ġ				
	03-3	M												
	B3·3	M			Pro	y B	~0							
3	93-6	M			[ <del>[</del>		· .							
	F3-6	NO												
	936	F		\	2		(SD)				/			
	03-16	M												
								·						
						}								

LA = Libby-type amphibote

OA = Other (non-Libby type) amphiboie

C = Chrysotile

NAM = Non-asbestos material

T:\Werksheet in TEM Bench sheet.doc

## Analytical Procedures - AHERA

Transmission electron inicroscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

#### **Equations Used for Calculations**

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, s/cc =  $\frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$ 

Filter loading,  $s/mm^2 = \frac{\# \text{ Asbestos structures}}{\text{Area Analyzed } (mm^2)}$ 

GO = TEM grid opening



June 27, 2012

Laboratory Code: Subcontract Number:

RES NA

Laboratory Report: Project # / P.O. #

RES 238751-1 None Given

Project Description:

3rd West Sub - RMP

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer.

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 238751-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the ciient. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer

President

# RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

#### TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

**RES Job Number:** 

RES 238751-1

Client:

R & R Environmental

Client Project Number / P.O.:

None Given

Client Project Description: Date Samples Received:

3rd West Sub - RMP

June 25, 2012

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

June 26, 2012

Client	Lab		Area	Air	Number of	Analytical	Asbestos	Filter
ID Number	ID Ni	umber	Analyzed	Volume Sampled	Asbestos Structures Detected	Sensitivity	Concentration	Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W-062212 E	EM	888423	NA	777	NA	Excess Debris	- Unable to Complete I	Prep Process
3W-062212 N	EM	888424	NA	777	NA	Excess Debris	- Unable to Complete I	Prep Process
3W-062212 W	EM	888425	0.1000	776	ND	0.0050	BAS	BAS
3W-062212 S	EM	8884 <b>26</b>	NA	774	NA	Reje	cted Due to Blown Fi	lter

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity Average Grid Opening in mm² = 0.010

Effective Filter Area = 385 sq mm

DATA QA

5801 Logan Streat, Suite 100 Denver, CQ 80216

Page 2 of 2

Oue Date: 6 26 2



RES 238751

Pager ; 303-509-2098

	_	INVO	ICE TO: (IF	DIFF	ERE	NT)_								C	ONTAC	TIN	FORM	ATION:	:			
Company: RERENVIOUMEN	al	Соттрапу:					C	ontact	Don	re	رمع	ice(t	24				Cantsc					
Address: 47 W 4000 5 #2		Addroes:					P	hono:									Phone:					
Sandy, Ud. 34070								ex:									Fax:					
												1035					Cell/pag	jor:				
Projed Number and/or P.O. #:								inal D	ata Deliv	arabis (	Email A	ddrass:										
Project Description/Location: 315 West	Wy RMP																					
ASBESTOS LABORATORY HO	IIRS: Weekdays: 7am - Tom			1			REO	IES	TED /	ANAI	YSI				T	VAI	D M	ATRIX C	ODES	LAF	NOTES	<u> </u>
	(Same Day) X PRIORITY (Next Day)	av) STANOAF	RD.	<del>                                     </del>				7	<del></del>	<del>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</del>	7	ĬΤΤ	$\top$	T		Air =			Bulk = B	+	, 1012	<del></del>
	(Rush PCM = 2hr, TEM = 6hr.)		_	1			\ ,		11	11	-{		-	1		)ust =			Paint = P	+		
CHEMISTRY LABORATORY H			· · · · · · · · · · · · · · · · · · ·	1					11				-	1	-	Soil =			Vipe = W	+		
Metal(s) / Dust	RUSH 24 hr 3-5 Day			1	<del>설</del>	} }		-	11	} }	}		- {	}		/ab =			F = Food	1		
RCRA 8 / Metals & Welding	DIEU Edou 40 dour	**Prior notific required fer		듷	Quant,		ء ا	:			န္ဌ		ءِ ا		Drinkin	g Wal	er = D	N Waste	Water = WW	,		
Fume Scan / TCLP	RUSH 5 day10 day	himarour		Point Count	, +/. ( Preps		Marale Scan				Quantification		1	22			0	= Olher				
Organics	24 hr 3 day5 Day			ह	, ĕ		į		11		<u> </u>	5 5	19	Ş	**AST	M E1	'92 app	roved wips	e media only**			
MICROBIOLOGY LABORATOR	RY HOURS: Weekdays: 9aiii - Sp	om .			ISO firect	} }			11		- 5	충	8 6	<u>s</u>	Ī	7		-		7		
E.coli O157:H7, Coliforms, S.aure				Long report	264 2 2	¥ 8	Spore Frame				, Š	튙튙	2 8	OTHER NOTES	1		1		1			
Salmonella, Listsria, E.coll, APC, `		•		ĝ	IS.		Nespirade llyte(s)	•	11.		<u> </u>	8 8	E E	ğ		1				ļ		
Mold	RUSH24 Hr _	48 Hr3 Day	yS Day		Aac A	74008,	8		1.17		[하	১ ১	وَاعَ	153	ļ		ļ		ļ	ļ		
	y priority, subject to laboratory volume and y for afterhoura, weekends and holidays.**	era not guaranteed.	. Additional reas	&	78	4 4	Analyte(s)	.   [	7 5		g 8	* +	9 3	È	흩					<b></b>		
	y for and noura, weekends and noudays.	<u> </u>		Short report,	AHERA, Jant, Mic	- 7400A.	S - Anal	- S	Selmonella: +/-	+	Aerobic Plate Count. E.coll: +/- or Qua	일 명	*   ‡	S	3	Sog	8		1		· :	
Special Instructions:				2	₹ <u>5</u>	4	.   ଅଞ	💆	<u> </u>	Listeria	8 8	Coliforms: S.aureus:	¥   50 20 20 20 20 20 20 20 20 20 20 20 20 20	5	9 8	ğ	횮	Date	Time	EM Nun	aber (Lab	oralory
			·		Semir	PCM	METALS	ORGANICS - METH	N I		71-71		≥َ اِحَ	3	Sample Voiume (L) / Ares	Matrix		Coltected	Collected	, U	se Only)	
Client sample ID number	(Sample ID's must ba uniqu	ue)		<u>-</u>	FØ	<u> </u>	5   E &	0	┥	MICE	ROBIC	LOGY		Ø		+		mm/dd/yy	hh/mm a/p	<del>-  </del>	<u>:</u> _	
1 3W-062212 E			·	$\sqcup$	人			_	1-1-	11	-1-1	$\rightarrow$	4	<u> </u>	777	A	6	125/05	-	866	<u>: 42</u>	3
2 3w 062212 N							1	_				11			777						2	4
3 360 262212 W					11										776						2	1
4 3W-067212 S					1			T				$\Box$			774						7/	
5							1						7									
6	· · · · · · · · · · · · · · · · · · ·						+	1	11	11		7	$\top$					<del></del> -				
7		<del></del>	· · ·	$\vdash$		-+		+-	11	††	+	++	+		<del>                                     </del>		┪	<del></del> :	<del> </del> -	+		
8		18-18-18-18-18-18-18-18-18-18-18-18-18-1				-	<del></del>	╅┈	┿	+	+-	++	+		<del>                                     </del>			<del></del>	<del> </del>	+		-
<del></del>		······································	·	+	-	-+	+-	╁	+	┼┼	+	++	+	<del></del>	-	-	+		+	+		
9 10		<del></del>	<del></del>	-				╁	++	╁┼	+	++				-				<del> </del>		
<del></del>		<del></del>		بيا			<u>.ļ.</u>	<u> </u>		4				L-i-	<u> </u>	1.:1	L					لـــــــــــــــــــــــــــــــــــــ
Number of samples received;	s based upper information received and will not be	ional samples sha erasponsible for errors				•	•	curac.	of orlate	nal d <b>at</b> a	a Rue	anino efic	ant/oo	TO SELV THE	visshnesov	A DOTAL	e that e	rhmission c	ol the following e	amples for rea	ested	
	tody shall constitute an analytical services agree															- Lg. 0			Total Colomity St	mipros tot requ	103100	
Ballaguighad Bur D	Lanie Fed	Er				Dele C	rime: (	/2	2/22	<b>,</b>									0-1	0	(	/
Relinquished By: () A	- X Joope 1 ea	-/-				Daie/	ime: G	-( -				<del></del>			_	•	Condit °)			Sealed Yes / No 🗸	Intact Yes No	
Received By:		ate/Time:	٠ له٠	z	<u>5.</u> 1	2	Carri	er:	₹		4	三と				<del>.</del>	<u>'</u> _	'	93/NU I	. 60 / 140	765,100	'
Results: Contact Daw	Phone Email Fax Date	elzsa Time	Initk	als	Con	tact			Phon	e En	nail E	ах			Dale	ج2ر	77	- Tin	ne 755.	Initials		$\overline{\checkmark}$
Conlact	Phone Email Fax Date	Time	Initia	als	Cor	tact			Phon	e Em	nail F		_		Date			Tim		Initials		
1	1050											7	7	73	<b>³</b> ₹	01	3 6	رز (س	75<	_	•	•

# Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

# Asbestos Type A = Amosite An = Anthophyllite C = Chrysotile Cr = Crocidolite T = Tremolite Structure Types F = Fiber B = Bundle C = Cluster M = Matrix

ND = no structures detected

= other structure associated with a matrix

NAM = Non Asbestos Mineral

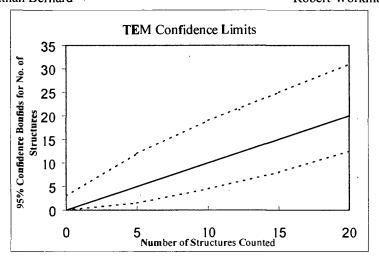
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

## **TEM Analysts**

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% contidence bounds for the number of structures counted assuming a Poisson distribution.

# Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Tyoe	

Client :	R+R
Sample Tyoe (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	777
Oate received by lab	6/25/12
Lab Job Number:	738751
Lab Samole Number:	888423

Analyzed by	JB
Analysis date	6/25/12
Method (D=Direct, I=Indirect, IA=Indirect, astjed)	D
Counting mles (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):				
Fraction of primary filter used				
Total Peritenension Volume (mi)				

Voluma Applied to secondary filter (ml)

Grid	Grid Opening	Structure	No. of Stru	ctures	Dime	nsions	Identification	Mineral Class			<u>:</u>	1 = ye	es, blank	= no
Gild	Gild Opening	Туре	Primary	Total	Length	Width	·	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
						Cannol	be o	rep sed	13	6/20/1	?			
										1 1.				
					,									
						1								
												÷		

# Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filler Area (mm2)	
QA Type	

Client:	R+R
Sample Tyoe (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	777
Date received by lab	6/25/12
Lab Job Number:	238751
Lab Sample Number:	888424

Analyzed by	JB_
Analysis date	6/26/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Oate Analyzed

F-Factor Calculation (Indirect Preps Only):				
Fraction of primary filter used	1			
Total Resuspension Volums (ml)				
Volume Applied to secondary filter (mi)				

Grid	Grid Opening	Structure	No. of Str	uctures	Dimensions		Dimensions		nsions Identification Mineral Class					1 = yes, blank = no		
Onu	Ond Operang	Туре	Primary	Total	Length	Width	Ideranicatori	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS		
	·															
							Cannot	be prepried	JR	up	1/12					
								1 17	7	7						
,							·									
•																
					,							-				

# Reservoirs Environmental, Inc. TEM Asbestos Structure Cobnt

Laboratory name:	REI
Instmment	JEOL 100 CX N S
Voltaae (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Tyoe	

R+R
A
776
6/25/12
238751
888425

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to sacondary filter (ml)	

Analyzed by	JВ
Analysis date	6/26/12
Method (D=Dlfect, I=Indlrect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	pening Structure No. of Structures Dimensions Identification Mineral Class				1 = yes, blank = no								
Olid	Grid Opening	Туре	Primary	Total	Length	Width	identification	Amohiboie	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	K4-1	ND				Pus	A 2	50 % unt	u f	15-	20% de	<u>u5</u>		
	H4-1	M				2.	0B 8	O hunh	1	15	20 % de	2115		
	614-	MD				<b>V</b> .					•			
	F4-1	ND							13	6/2	6/12			
	E4-1	MD									7			
13	K5-4	$\Lambda D$						/			,			
	450	M)						\ \ 		,				·
	(25-4)	ND				·								
	·F5-4	47												
	E5-4	ND		·										

# Reservoirs Environmantal, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instmment	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filler area (mm2)	385
Secondary Filter Area (mm2)	
QA Туре	•

	1 2 2
Client :	RXX
Sample Type (A=Air, D=Dust):	A
Air yolume (L) or dust area (cm2)	774
Oate received by lab	6/25/12
Lab Job Number	238751
Lab Sample Number	888426

Lab Campic Hambor	1 000100
F-Factor Calculation (Indirect Preps	Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	6/26/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	P
Counting mies (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening		No. of Str	No. of Structures Dimens		nsions	Identification	Mineral Class				1 = yes, blank = no		
	Cind Opening	Туре	Primary	Total_	Length	Wkith	130/milloution	Amptilbote	С	NAM	Sketch/Comments	Sketch	Photo	EDS
		•			Sav	mole	rejul	date	resa	vation	struct			
						U	du	toa		wn	Files	·	-	9
										/				
									1/2	4/2	5/12			
								/.	7	7	7			
						·		/	·					,
		•												

# Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

#### **Eauations Used for Calculations**

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, s/cc = #Asbestos Structures x 1 x Eff. Filter Area (mm²) x 1t.

#GO Counted Volume (L) Average GO area (mm²) 1000cc

Filter loading, s/mm² = # Asbestos stmctures Area Analyzed (mm²)

GO = TEM grid opening